

CLIMATOLOGICAL DATA FOR JANUARY, 1913.

DISTRICT NO. 4, THE LAKE REGION.

Prof. HENRY J. COX, District Editor.

GENERAL SUMMARY.

Over the greater portion of the Lake region the month of January, 1913, was characterized by daily mean temperatures considerably above the normal, frequent precipitation, and the absence of heavy snowfalls. In northern Vermont and New York the lack of snow caused serious inconvenience to business interests, especially logging and teaming, and in the former State these conditions were without precedent as far as reliable records are concerned. The temperature over the entire district during the month was in marked contrast to that experienced in January, 1912, the mean monthly temperatures in many instances for January, 1913, exceeding those of the former month by from 18° to 21° . It will be recalled that January, 1912, was the coldest month of its name on record in all portions of the district, while the present month, in eastern and central portions, was one of the warmest midwinter months in many decades. In Ohio and Pennsylvania the monthly means at many stations even exceeded those of the previous month of December.

Precipitation during the month was mostly in the form of rain in eastern and central sections and along the southern shore of Lake Erie it was exceptionally heavy. The most severe storm of the month occurred on the 7th-8th, when great damage was done in northern Ohio. A detailed account of this storm and its effects is given on the following page.

Sunshine was generally deficient, except in the lower Lake region, and markedly so in the upper Michigan peninsula. Wind movement was in excess of the normal at nearly all stations.

The following table briefly summarizes the chief features of meteorological interest in the various portions of the district:

States and portions of States.	Mean temperature.		Mean daily range.		Mean precipitation.		Greatest precipitation in 24 hours.		Mean snowfall.		Number of days—			Prevailing wind direction.
	Mean	Departure.	Mean	Departure.	Mean	Departure.	With 0.61 inch or more.	Clear.	Partly cloudy.	Cloudy.				
Minnesota.....	6.3	- 2.0	20.0	0.41	-0.44	0.34	5.2	5	13	9	9	nw.		
Wisconsin.....	18.1	+ 1.3	16.4	1.18	-0.25	1.33	12.7	8	11	6	14	nw.		
Illinois.....	29.3	+ 5.6	14.6	1.40	-0.58	0.50	7.8	12	4	10	17	s.		
Indiana.....	30.4	+ 5.3	15.1	4.08	+2.42	1.50	6.6	14	7	6	18	sw.		
Upper Michigan.....	16.3	+ 1.8	15.6	1.56	-0.23	0.84	15.8	11	6	6	19	w.		
Lower Michigan.....	26.6	+ 4.4	13.7	2.47	+0.22	2.50	11.3	10	6	6	19	sw.		
Ohio.....	33.2	+ 6.8	14.5	6.36	+3.78	1.55	10.4	16	7	5	19	sw.		
Pennsylvania.....	35.9	+ 9.4	13.8	5.60	+2.57	1.13	4.1	17	4	6	21	s.		
New York.....	30.3	+ 9.6	15.2	4.75	+1.63	2.00	12.5	15	6	9	16	s.		
Vermont.....	27.9	+11.5	20.2	3.14	+0.53	0.97	10.1	13	6	10	15	s.		

TEMPERATURE.

The mean temperatures for the month were above the normal in all sections, except in Minnesota, the greatest departures occurring in New York and Vermont, where the monthly means exceeded the normal by from 9° to 13° . Thence westward these departures gradually decreased, reaching the region of practically no departure in northern Wisconsin and central upper Michigan, there being a deficiency in temperature in Minnesota, as stated above. However, in this latter section the month was not unusually cold, the greatest average negative departure being 4.1° , at Duluth, Minn. Over the eastern portions of the district the month was one of extreme and persistent warmth and daily positive departures of 15° were frequent. At Canton, N. Y., and Burlington and Northfield, Vt., the daily excesses in temperature for the period from the 15th to the 18th, inclusive, averaged from 22° to 23° , a most remarkable record for the middle of January. This same period brought the highest maximum temperatures to practically all portions of the district, although in no section were high temperature records broken, the abnormal warmth being due to unusually high minimum temperatures and the absence of zero weather of long duration.

The month opened with a continuation of the mild weather which prevailed in all sections during the month of December. The first cold period as well as the most prolonged occurred from the 4th to the 9th, inclusive, but was not severe except in Minnesota. The lowest temperatures of the month occurred quite generally in western sections during the prevalence of a short but severe cold wave from the 11th to the 13th, a minimum of -36° being reported at Stephens Mine, Minn., on the 11th, and -31° at Bergland, Wis., on the 13th. Over eastern and central parts the lowest readings were recorded either during this period or the one from the 4th to the 9th, there being no cold weather of any extent throughout the balance of the month. In Ohio zero temperature was not reached at any time during the month, the lowest being 3° at Bowling Green. This fact is worthy of mention in that only twice before in the history of the Ohio State Weather Service, covering a period of about 40 years, has this record been equaled. On the 30th and 31st unusually high daily means were again noted in New York and Vermont.

PRECIPITATION.

The precipitation during the month was above the normal amount in Indiana, Ohio, New York, and Vermont, but in the northwestern portion of the district there was a slight deficiency, generally under 1 inch. In the latter

section, where the precipitation was largely snow, the deficiency was due to small amounts for each storm rather than infrequency of occurrence, while in the central and eastern sections about three-fourths of the precipitation was in the form of frequent and general rains. In Ohio the month was the wettest January on record at 19 stations, and aside from these, at most places the monthly total was more than twice the usual amount. In New York the month also ranked as an exceptionally wet month.

Snow.—The snowfall was generally below the normal, except in northern Wisconsin, northeastern Indiana, and central Ohio, where in the two last-named sections heavy falls occurred on the 3d and 28th. This snow, however, did not remain on the ground long. In portions of western New York and in Vermont the snowfall was unusually light.

At the end of the month there was no appreciable snow covering over the southern and eastern portions of the district, while in upper Michigan the depths ranged from 5 inches at Escanaba to 36 inches at Houghton.

STORMS.

Although over most of the district the month was free from frequent and general storms, this statement will not apply to northern Indiana and Ohio, which sections appear to have received the brunt of the only two severe storms of the entire month, occurring on the 7th, 8th, and on the 18th. The lowest barometer readings on record, over the eastern portions of the district, were reached during the passage of a depression down the St. Lawrence Valley on the 3d. At Canton, the phenomenally low pressure of 28.20 inches (sea level) was recorded at 8 p. m. of the 3d. Considering this unprecedented low reading, the winds were not unusually destructive, and but little serious damage from this source resulted. However, at Rochester, N. Y., the electric and telephone companies reported that the damage due to snow and sleet in connection with this storm was the most costly on record in their localities.

The disturbance of the 7th–8th was in the nature of a rain and sleet storm, regarding which the observer at Toledo reports as follows:

On the night of the 6th–7th, and during the day of the 7th, the rainfall was continuous, freezing wherever it fell and forming ice on trees, electric wires, etc., to 1 inch in thickness. This ice broke a large number of limbs on the trees, in some cases stripping them, and it completely demoralized telegraph and telephone service, and seriously crippled electric car service, both urban and interurban. The ice did not melt for three or four days, so that it was impossible to repair the broken wires during that time, but fortunately there were no high winds. The resulting damage in and about Toledo is estimated at

many thousands of dollars. Reports indicate that the area of damage by the freezing rain extended 15 to 20 miles north and south of Toledo, and probably 40 to 50 miles east and west.

The storm of the 18th caused high winds, which did much damage principally in Ohio, buildings being unroofed, oil derricks and trees blown down, and several persons seriously injured. At Cleveland, Ohio, the wind reached a maximum velocity of 60 miles an hour.

ICE AND NAVIGATION.

On account of the prevalence of unusually high temperatures during most of the month, ice in large quantities formed only in the northern portions of the district. In eastern and southern sections, the rivers and harbors were generally free from ice, and navigation was not seriously hindered at any time. At the end of the month the thickness of ice in northern harbors on the Lakes ranged from 24 inches at Duluth, Minn., to 9 inches at Sault Ste. Marie, Mich.

RIVERS AND FLOODS.

No serious floods occurred during the month, and while some damage from high water was reported at Port Huron, Mich., it was not caused by an overflow from the Black River, but by water which accumulated in a poorly drained section of the city, as the result of thaws. The Maumee River at Fort Wayne was above the flood stage on nine days of the month, and a few residences in the lower part of the city were flooded.

MISCELLANEOUS.

Thunderstorms, occurring in either Indiana or Ohio, were reported on the 6th, 7th, 18th, and 20th.

JANUARY LAKE LEVELS.

The following data are from the report of the United States Lake Survey:

	Lake Superior.	Lakes Michigan and Huron.	Lake Erie.	Lake Ontario.
Above tidewater at New York.....	Feet. 601.04	Feet. 580.08	Feet. 572.27	Feet. 246.51
Above or below:				
Stage of December, 1912.....	−0.27	−0.15	+0.80	+0.40
Stage of January, 1912.....	+0.08	+0.77	+0.99	+1.75
Mean stage January last 10 years.....	−0.24	+0.06	+0.58	+1.08
Highest recorded stage.....	−0.94	−2.59	−1.28	−1.09
Lowest recorded stage.....	+0.96	+1.00	+1.31	+2.71
Probable change during February.....	−0.20	0.00	−.10	+0.10

TABLE 1.—Climatological data for January, 1913. District No. 4, Lake Region.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.			Departure from the normal.			Total.			Departure from the normal.			Greatest in 24 hours.				
				Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Lowest.	Date.	Greatest daily range.	Total.	Lowest.	Date.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days, 0.01 inch or more.	Number of partly cloudy days.	Number of clear days.
Minnesota.																				
Cloquet.	Carlton.	800	2	5.2	-4.1	38 ^a	1	-32 ^a	12	52 ^a	0.42	-0.23	0.28	4.2	3	6	12	w.	W. H. Kenety.	
Duluth.	St. Louis.	1,133	42	6.3	-4.1	38	1	-28	12	41	0.75	-0.26	0.36	9.3	12	8	9	14	U. S. Weather Bureau.	
Floodwood.	do.	1,257	6	4.6	-0.4	40	17	-36	11	54	0.46	-0.34	0.60	6.0	2	18	9	4	M. H. Schussler.	
Stephens Mine.	do.	1,500	6	4.6	-0.4	40	1	-26	42	19	0.29	-0.20	0.30	3.0	3	18	9	4	Oliver Iron Mining Co.	
Two Harbors.	Lake.	614	19	11.6	-0.4	40	1	-26	42	19	0.08	-0.48	0.50	5.0	4	16	6	6	G. W. Watts.	
Virginia.	St. Louis.	1,434	19	3.7	-1.5	35	1†	-34	12	45	0.33	-0.60	0.12	3.4	6	15	5	11	Oliver Iron Mining Co.	
Wisconsin.																				
Appleton.	Outagamie.	795	12	19.4	+ 3.4	44	17	- 9	12	31	1.48	- 0.44	0.55	15.7	11	15	1	15	Wm. O. Thiede.	
Ashland.	Ashland.	615	22	11.2	- 3.6	42	16	- 24	12	45	0.59	- 0.55	0.36	5.5	6	11	15	sw.	Agr. Exper. Station.	
Bayfield.	Bayfield.	635	4	12.4†	- 0.5	41 ^a	17	- 16 ^a	12	37 ^a	0.32	- 0.22	0.22	3.2	4	13 ^a	6	10	F. Kern.	
Cecil.	Shawano.	504	15	16.8	- 0.5	42	17	- 14	14	41	0.65	- 0.67	0.12	14.5	10	15	6	10	Louis W. Schmidt.	
Cornucopia.	Bayfield.	640	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Reed Fruit Co.	
Crandon.	Forest.	1,060	18	13.2	+ 1.6	41	17	- 16	12	35	0.65	- 0.73	0.30	6.5	4	12	8	11	Frank Shoemaker.	
Florence.	Florence.	1,293	22	14.0	+ 0.6	41	17	- 13	13	37	1.47	+ 0.39	1.07	4.0	5	11	19	nw.	Fred S. Evans.	
Fond du Lac.	Fond du Lac.	800	27	19.5	+ 2.5	49	17	- 10	12	34	2.66	+ 1.36	1.33	20.8	7	20	3	8	Edward A. Seeley.	
Grand River Locks.	Marquette.	770	17	18.4	+ 3.8	47	17	- 14	14	40	0.96	- 0.14	0.58	16.0	8	13	4	14	Jerry Parkinson.	
Green Bay.	Brown.	617	27	18.4	+ 3.8	47	17	- 7	12	31	1.17	- 0.32	0.30	13.0	10	5	9	17	U. S. Weather Bureau.	
High Falls.	Marinette.	1,125	1	16.7	- 0.4	43	17	- 16	28	40	1.64	- 0.50	0.50	11.4	13	8	14	9	No. Hydro-Elec. Pow. Co.	
Iron River.	Bayfield.	1,096	4	9.3	- 0.4	41	17	- 29	12	45	1.45	- 0.30	0.30	14.5	10	15	1	15	Winfield E. Tripp.	
Keweenaw.	Manitowoc.	616	62	22.0	+ 2.9	48	17	- 5	12	29	1.51	- 0.19	0.51	16.5	8	8	4	19	Eugene V. Kimball.	
Menasha.	Winnebago.	764	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Miss Johanna Lups.	
Menominee Falls.	Waukesha.	842	4	21.7	- 0.4	48	17	- 8	12	32	1.07	- 0.52	0.46	14.8	8	10	5	16	Geo. T. Allanson.	
Milwaukee.	Waukesha.	681	43	23.8	+ 4.0	51	17	- 5	12	29	1.07	- 0.94	0.46	9.7	11	5	11	15	Arthur H. Christman.	
New London.	Outagamie.	762	17	17.8	+ 1.2	48	15	- 13	12	31	0.66	- 0.50	0.41	15.0	5	6	20	nw.	U. S. Weather Bureau.	
Oconto.	Oconto.	590	22	19.2	+ 1.5	44	17	- 7	12	28	1.67	+ 0.03	0.40	15.0	10	11	13	7	August H. Pape.	
Oshkosh.	Winnebago.	744	24	19.1 ^a	+ 0.8	47 ^a	16	- 12 ^a	11	38 ^a	1.20	- 0.21	0.40	12.0	4	16	7	8	Wm. K. Smith.	
Pine River.	Waushara.	900	18	17.8	+ 1.1	46	17	- 15	12	33	0.80	- 0.14	0.21	13.3	10	7	13	11	Evan Vincent.	
Plum Island.	Door.	588	5	23.0	- 0.4	43	17	- 2	21	28	1.32	- 0.30	0.30	15.0	8	13	0	18	Geo. H. Carpenter.	
Plymouth.	Sheboygan.	843	3	20.0	- 0.4	48	17	- 8	12	30	1.31	- 0.54	0.26	9.8	8	10	13	sw.	Wm. Robinson.	
Port Washington.	Ozaukee.	713	20	23.4	+ 3.2	50	17	- 7	12	35	1.35	- 0.57	0.80	10.5	4	6	6	19	Paul O. Fendrappe.	
Racine.	Racine.	636	16	25.9	+ 2.2	52	17	- 5	12	30	0.97	- 0.79	0.48	6.5	6	12	3	16	Richard C. Kann.	
Ripon.	Fond du Lac.	1,031	3	18.8	- 0.4	46	17	- 13	12	30	1.39	- 0.40	0.40	14.8	10	15	4	12	Daniel Davis.	
Sheboygan.	Sheboygan.	831	14	21.0	- 0.3	48	17	- 10	12	40	2.05	+ 0.10	0.80	20.5	5	9	10	12	Ripon College.	
Sturgeon Bay.	Door.	600	14	20.0	- 0.7	47	17	- 8	13	30	1.30	- 0.38	0.38	18.0	8	11	4	16	Louis C. Meyer.	
Superior.	Douglas.	701	4	7.2	- 0.4	40	1	- 24	12	40	0.17	- 0.04	0.21	2.1	7	14	3	14	Adam N. Dier.	
Waupaca.	Waupaca.	857	18	16.4	+ 0.2	43	17	- 15	13	36	0.86	- 0.15	0.24	16.5	10	10	7	14	Edward B. Banks.	
Illinois.																				
Chicago.	Cook.	823	43	29.3	+ 5.6	55	17	0	12	32	1.40	- 0.58	0.50	7.8	12	4	10	17	s.	U. S. Weather Bureau.
Evanston.	do.	601	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	City of Evanston.	
Indiana.																				
Auburn.	Dekalb.	874	17	30.2 ^b	+ 4.9	57 ^b	17	- 1 ^a	9	38 ^b	3.96	+ 1.68	0.80	8.0	11	8 ^a	2*	20*	sw.	Mrs. Josie B. Kuhlman.
Berne.	Adams.	849	4	33.4	- 59	20	9†	31	7.28	1.33	- 1.33	11.5	18	7	6	18	18	sw.	Henry M. Reusser.	
Ft. Wayne.	Allen.	856	17	31.8	+ 4.9	56	17	3	31	42	5.54	+ 3.17	1.50	10.0	19	6	6	19	U. S. Weather Bureau.	
Hammond.	Lake.	598	22	29.8 ^a	+ 6.1	54 ^a	17	- 1 ^a	12	32 ^a	—	—	—	6*	8 ^a	16*	16*	sw.	Carson W. Whitney.	
Howe.	Lagrange.	886	8	29.6	- 52	16	10	13†	30	3.17	—	1.23	2.0	10	0	0	21	sw.	James E. Zook.	
Notre Dame.	St. Joseph.	712	2	28.8	- 55	17	4	31	36	2.83	—	0.96	2.7	18	2	9	20	sw.	U. S. Weather Bureau.	
Whiting.	Lake.	606	4	29.0	- 52	17	1	12	33	1.68	—	0.73	7.0	8	11	9	11	sw.	D. H. Boyd.	
Michigan—Upper Peninsula.																				
Baraga.	Baraga.	623	11	17.0	+ 2.1	52	16	- 8	5†	35	1.14	- 0.40	0.22	8.6	12	4	5	22	w.	D., S. S., & A. Ry.
Bergland.	Ontonagon.	1,300	3	10.7	- 41	41	17	- 31	13	48	1.10	- 0.20	0.20	12.0	16	2	3	21	sw.	Frank McMonigal.
Calumet.	Houghton.	1,246	25	14.4	- 1.0	38	17	- 10	21	32	2.32	- 0.28	0.32	29.0	2	3	26	26	E. S. Grierson.	
Chatham.	Alger.	875	12	14.6	- 1.3	41	17	- 11	21	41	2.30	- 0.08	0.80	23.0	8	2	3	26	Upper Peninsula Exp. Sta.	
Deer Park.	Chippewa.	610	12	20.6	+ 2.4	40	15	- 2	21	22	1.10	- 1.02	0.20	10.0	7	6	1	24	Mrs. Sarah E. McGaw.	
Detour.	Keweenaw.	585	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Wm. Jones, Jr.	
Eagle Harbor.	Delta.	622	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	John Nolen.		
Escanaba.	Delta.	612	40	17.5	+ 3.0	40	17	- 6	21	35	0.82	- 0.73	0.22	8.6	12	4	5	22	U. S. Weather Bureau.	
Ewen.	Ontonagon.	1,147	12	11.2	- 1.8	42	17	- 22	12	43	2.36	+ 1.07	0.62	23.0	12	9	2	20	W. B. Hatfield.	
Grand Marais.	Alger.	610	12	18.0	- 0.1	42	17	- 6	21	28	3.00	+ 0.39	0.30	30.5	18	1	2	28	Mrs. Lena Truedell.	
Green.	Ontonagon.	622	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	T. A. Green.		
Houghton.	Houghton.	668	12	15.5	+ 1.6	41	17	- 8	21	29	1.62	- 0.42	0.84	24.4	18	2	4	25	U. S. Weather Bureau.	
Humboldt.	Marquette.	1,536	16	13.1	+ 2.4	42	17	- 27	13	42	0.41	- 0.82	0.30	4.1	3	5	0	26	D., S. S., & A. Ry.	
Iron Mountain.	Dickinson.	1,111	12	15.8	+ 0.5	44	17	- 11	12	34	0.65	- 0.09	0.12	4.8	11	8	11	12	Chapin Mining Co.	
Iron River.	Iron.	1,504	16	11.6	+ 0.8</															

TABLE 1.—*Climatological data for January, 1913. District No. 4—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.	Prevailing wind direction.	Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
<i>Michigan—Lower Peninsula.</i>																				
Adrian.	Lenawee.	770	35	30.4	+ 7.4	52	17	10	9 [†]	26	2.91	+ 0.81	0.88	13.6	12	8	6	17	sw.	
Allegan.	Allegan.	698	22	30.4 ^a	+ 7.0	47	19	8 [‡]	9	31 ^c	1.97	- 0.08	0.50	16.0	10	3	7	21	s.	
Alma.	Gratiot.	750	26	25.2	+ 3.7	50	17	2	13	28	1.97	- 0.52	0.62	15.0	8	5	8	18	sw.	
Alpena.	Alpena.	609	40	23.1	+ 4.4	50	17	17	28	29	1.53	- 0.67	0.49	17.2	16	1	9	21	sw.	
Ann Arbor.	Washtenaw.	930	33	28.7	+ 6.2	52	17	6	13	29	3.02	+ 1.09	1.01	8.3	15	9	8	14	sw.	
Arbela.	Tuscola.	728	17	24.8	+ 1.8	50	17	1	6	9	2.35	+ 0.10	0.75	15.0	7	1	7	23	sw.	
Battle Creek.	Calhoun.	822	29	28.6	+ 5.1	51	17	6	9 [†]	28	3.53	+ 1.40	1.10	8.0	8	6	3	22	sw.	
Bay City.	Bay.	593	17	26.7	+ 4.1	52	17	4	13	31	1.85	- 0.31	0.80	13.8	9	15	11	5	sw.	
Benzonia.	Benzie.	832	16	24.3	+ 2.8	49	17	5	1 [‡]	27 ^a	3.24	- 0.04	1.28	32.0	13	3	16	12	se.	
Berlin.	St. Clair.	24	26.4 ^a	+ 4.1	49 ^a	51	17	3	9 [†]	27 ^a	4.17	+ 2.09	0.82	10.5	13	2 [‡]	18	sw.		
Big Rapids.	Mecosta.	906	17	25.0	+ 5.0	51	17	3	9	32	1.24	- 1.52	0.53	4.1	12	3	16	nw.		
Blissfield.	Lenawee.	687	1	30.2	-	55	17	8	9 [†]	24	3.61	-	1.10	-	7	12	3	20	se.	
Bloomingdale.	Van Buren.	9	27.7	-	53	17	5	13	32	1.25	-	0.40	5.5	6	3	20	sw.			
Cadillac.	Wexford.	1,293	4	22.4	-	45	17	0	9	24	2.25	-	0.63	20.6	11	0	5	26	Cadillac Water & Light Co.	
Cassopolis.	Cass.	903	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Michigan Central R. R.		
Charlevoix.	Charlevoix.	610	35	24.8	+ 4.1	48	19	-	2	31	3.5	- 0.93	0.30	16.0	7	4	5	22	w.	
Charlotte.	Eaton.	9	27.6	-	51	17	-	3	9	39	1.90	-	0.80	15.0	5	6	5	20	sw.	
Cheboygan.	Cheboygan.	611	23	21.8	+ 3.2	45	18	-	2	14	32	- 0.36	0.60	4.3	5	3	19	9	sw.	
Clinton.	Lenawee.	830	23	31.0	+ 7.3	58	25	6	9	34	4.01	+ 2.15	1.20	2.4	11	7	9	15	sw.	
Coldwater.	Branch.	984	16	30.0	+ 4.8	49	20 [†]	9	9 [†]	27	4.09	+ 2.13	1.15	4.8	14	8	1	22	sw.	
Concord.	Jackson.	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	W. N. Armstrong.		
Croton.	Newaygo.	685	5	26.6	-	52	17	1	9 [†]	27	1.15	-	0.60	11.5	4	2	10	19	sw.	
Detroit.	Wayne.	730	42	30.3	+ 6.0	54	17	12	13	33	3.95	+ 1.97	0.86	8.0	16	5	5	21	sw.	
Durand.	Shiawassee.	799	5	28.2 ^a	-	-	-	3 [‡]	9	38 ^a	-	-	-	-	12 ^a	10 ^a	8 ^a	nw.		
East Tawas.	Iosco.	590	16	25.5	+ 4.1	49	17	-	4	9	32	1.30	- 0.48	0.50	6	10	6	15	sw.	
Eloise.	Wayne.	640	16	30.4	+ 5.8	49	18	9	9 [†]	28	4.08	+ 2.02	1.09	6.1	15	10	5	16	w.	
Flint.	Genesee.	730	24	27.8	+ 5.9	53	17	2	13	24	1.57	- 0.19	0.55	10.5	9	4	8	19	w.	
Frankfort.	Benzie.	589	9	26.3	-	40	16 [†]	9	12	20	2.10	+ 0.24	0.50	2.0	10	-	-	-	Geo. Morency.	
Ganges.	Allegan.	665	4	28.4	-	55	17	9	29	29	1.17	-	0.27	5.5	8	5	4	22	sw.	
Gaylord.	Otsego.	1,387	13	19.4	+ 2.3	44	17	-	5	9	30	1.32	- 0.54	0.27	-	11	3	0	28	sw.
Gladwin.	Gladwin.	794	17	24.6	+ 4.4	49	17	-	5	9	30	2.00	+ 0.19	1.10	9.0	5	19	3	9	w.
Grand Haven.	Ottawa.	628	32	28.0	+ 3.5	49	16	12	28	22	1.72	- 1.08	0.52	11.0	17	3	6	22	Michigan Central R. R.	
Grand Rapids.	Kent.	707	24	28.2	+ 4.4	54	17	13	21	25	1.86	- 0.92	0.47	13.1	16	3	5	23	Geo. R. Smith.	
Grape.	Monroe.	625	23	29.8	+ 4.3	49	20	-	5	13	23	3.92	+ 2.28	0.98	4.4	16	5	8	18	U. S. Weather Bureau.
Grass Lake.	Jackson.	989	7	28.1	-	45	17 [†]	7	9 [†]	28	3.72	-	1.05	7.0	17*	7	9 ^a	28	Do.	
Grayling.	Crawford.	1,147	23	21.9	+ 4.6	48	17	-	5	29	30	1.68	- 0.55	0.45	4.7	12	2	5	24	Joseph W. Morris.
Greenville.	Montcalm.	802	1	25.7 ^a	-	54 ^a	17	6 ^d	9 [†]	30 ^d	-	-	-	-	-	-	-	-	Menzo Conklin.	
Harbor Beach.	Clare.	635	25	26.5	+ 4.0	50	17	1	13	25	3.40	+ 1.53	1.00	24.0	7	3	11	17	sw.	
Harrison.	I, 159	20	24.8	-	5.6	49	17	-	1	13	37	-	-	-	6	19	s.	Pere Marquette R. R.		
Harrisville.	Alcona.	616	29	24.2	+ 4.5	48	17	-	4	13	34	1.83	- 0.93	0.50	16.1	10	5	12	14	sw.
Hart.	Oceana.	698	21	27.7	+ 5.4	50	17	-	3	9 [†]	30	2.10	- 0.70	0.40	14.0	9	4	13	14	sw.
Hayes.	Huron.	620	23	26.2	+ 4.1	52	17	-	3	9	27	2.09	- 0.09	0.97	8.0	5	4	4	23	sw.
Highland.	Oakland.	1,006	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A. D. DeGarmo.		
Hillsdale.	Hillsdale.	1,150	16	28.8	+ 4.7	52	17	7	13	29	3.74	+ 1.74	0.95	2.8	13	7	3	21	sw.	
Holland.	Ottawa.	610	7	28.5	-	53	17	-	10	21	32	1.75	-	0.39	12.1	14	6	8	17	s.
Houghton Lake.	Roscommon.	924	0	24.2	-	52	17	-	1	13	34	4.57	+ 2.84	1.15	4.9	12	11	6	14	nw.
Howell.	Livingston.	-	-	28.8	+ 6.7	52	17	-	3	13	25	4.57	+ 2.84	1.15	4.9	12	11	6	14	sw.
Ivan.	Kalkaska.	24	22.2	+ 3.4	46	17	-	8	13	31	1.49	- 0.68	0.40	17.5	10	1	8	22	sw.	
Jackson.	St. Clair.	927	16	29.7	+ 5.3	60	19	7	13	36	4.39	+ 2.39	1.25	3.9	12	17	3	11	sw.	
Jeddo.	Otsego.	667	24	26.7	+ 4.6	48	17	-	2	9 [†]	28	2.15	+ 0.31	0.45	12.5	12	5	6	20	sw.
Johannesburg.	Kalamazoo.	955	37	27.1	+ 3.5	53	17	4	9 [†]	33	2.30	+ 0.03	0.75	6	6	6	6	21	Kalamazoo Asylum.	
Kalamazoo.	Lansing (Agric. College).	863	49	26.2	+ 3.5	52	17	1	13	30	3.10	+ 0.01	0.95	18.7	17	5	2	24	U. S. Weather Bureau.	
Lansing (capital).	- do.	881	26	27.0	+ 4.2	53	17	6	13	38	3.17	+ 1.11	0.55	17.3	15	5	2	-	State Board of Health.	
Lapeer.	Lapeer.	827	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Michigan Home.		
Ludington.	Mason.	586	15	26.6	+ 2.3	47	16	-	9	12	23	1.81	- 0.46	0.66	13.2	15	1	5	25	Pere Marquette R. R.
Luther.	Lake.	1,028	3	23.2	-	49	17	-	5	24	37	2.03	-	0.61	16.0	13	3	4	24	sw.
Mackinaw.	Cheboygan.	592	22	22.6	+ 5.2	48	18	-	2	14	33	-	-	-	-	2	0	24	w.	
Mancelona.	Antrim.	1,121	17	21.2	+ 2.2	45	17	-	0	13	30	-	-	-	-	1	28	sw.		
Manistee.	Manistee.	600	16	27.5	+ 3.8	52	17	6	12 [†]	33	-	-	-	-	-	-	-	Pere Marquette R. R.		
Marshall.	Calhoun.	898	1	29.4 ^a	-	52 ^a	17	1 [‡]	12	36 ^a	-	-	-	-	-	-	-	E. B. Stuart.		
Midland.	Midland.	604	14	27.2	+ 4.0	50	17	1	13	25	0.50	- 0.97	0.30	5.0	3	6	1	24	se.	
Morenci.	Lenawee.	811	6	30.6	-	53	17	6	9	26	4.33	-	1.10	5.6	16	6	3	22	Pere Marquette R. R.	
Mount Clemens.	Macomb.	615	13	30.0	+ 5.7	52	17	4	13 [†]	36	4.02	+ 2.32	1.00	7.8	9	9	0	22	sw.	
Mount Pleasant.	Isabella.	826	14	24.0	+ 2.8	41	17	-	2	12	30	-	-	-	-	10	11	10	w.	
Muskegon.	Muskegon.	587	17	28.0	+ 4.7	46	17	11	13 [†]	27	0.99	- 1.68	0.30	8.3	12	4	22	sw.		
Old Mission.	Grand Traverse.	858	19	23.9 ^a	+ 1.7	48 ^a	17	5	13	27 ^a	1.97	- 0.11	0.40	18.9	13	3 ^a	7 ^a	18 ^a	sw.	
Olivet.	Eaton.	934	23	28.1	+ 5.1	51	17	6	9	32	2.66	+ 0.49	0.84	10.9	11	12	2	17	s.	
Omer.	Arenac.	616	14	-	-	-	-													

TABLE 1.—*Climatological data for January, 1913. District No. 4—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.								Precipitation, in inches.								Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days, 0.1 inch or more.	Number of partly cloudy days.	Number of overcast days.	Number of cloudy days.								
<i>Ohio.</i>																										
Akron.	Summit.	1,081	26	34.2	+ 6.7	57	21	13	5	37	5.86	+ 3.28	0.98	11.3	15	5	3	24	s.	Prof. C. R. Olin.						
Antwerp.	Paulding.	733	31	31.7	+ 6.4	55	18	8	13	29	6.74	-	1.55	6.0	12	7	0	24	nw.	North G. Osborn.						
Benton Ridge.	Hancock.	800	20	32.6	+ 5.4	58	20	-	9	30	7.35	+ 4.54	0.80	13.5	18	5	5	21	sw.	J. W. Powell.						
Bowling Green.	Wood.	670	32	31.8	+ 5.9	55	17†	3	9	27	6.67	+ 4.04	1.10	10.0	18	6	9	16	sw.	G. C. Housekeeper.						
Bucyrus.	Crawford.	1,000	19	32.8	+ 6.2	57	20	7	9	28	5.83	+ 3.08	1.55	24.0	16	8	3	20	s.	James R. Hopley.						
Cleveland (1).	Cuyahoga.	762	42	35.4	+ 9.2	59	20	14	9	32	5.66	+ 3.21	1.18	6.2	19	5	6	20	s.	U. S. Weather Bureau.						
Cleveland (2).	do.	754	16	34.6	+ 7.0	58	20	15	9	33	5.30	+ 2.63	0.75	8.2	16	8	3	20	se.	Rev. F. L. Odenbach, S. J.						
Conneaut.	Ashtabula.	675	3	35.0	+ 6.4	59	20	14	9	35	6.33	-	1.01	3.7	13	3	7	21	sw.	E. L. Ransom.						
Findlay.	Hancock.	776	24	33.3	+ 6.4	58	20	4	5†	30	7.02	+ 4.49	1.10	13.0	14	8	10	13	sw.	Dr. E. A. Moser.						
Fremont.	Sandusky.	628	11	33.8	+ 4.8	56	17†	9	9	24	6.62	+ 4.04	1.04	9.7	13	11	1	19	sw.	E. Stanley Thomas.						
Hedges.	Paulding.	725	19	31.8	+ 5.4	55	17†	6	5	26	7.19	+ 4.53	1.25	8.8	11	9	3	19	s.	Charles Stutzman.						
Hillhouse.	Lake.	997	20	32.8	+ 7.5	56	20	10	9	30	6.59	+ 3.69	1.11	8.5	13	5	6	20	s.	J. W. Doncaster.						
Hiram.	Portage.	1,260	33	34.4	+ 9.4	56	20	12	9†	35	4.69	+ 1.90	0.71	11.5	17	8	4	19	sw.	Prof. G. H. Colton.						
Hudson.	Summit.	1,123	52	33.6	+ 7.6	56	11†	10	5†	27	5.50	+ 2.93	1.93	1.02	9.8	13	7	7	17	se.	Dr. W. J. Chamberlain.					
Lima.	Allen.	875	14	33.4	+ 6.1	55	17†	10	9	27	7.67	+ 4.43	1.30	12.0	16	12	1	18	nw.	Miss Ollie De Long.						
Medina.	Medina.	944	25	33.6	+ 7.3	57	20	6	5	33	6.25	+ 3.61	0.91	6.0	17	10	0	21	s.	G. F. Clark.						
Montpelier.	Williams.	880	21	30.8	+ 7.5	54	17	9	21	29	4.93	+ 2.78	1.30	8.1	16	4	4	23	w.	G. L. Laser.						
Napoleon.	Henry.	680	26	30.3	+ 3.9	55	16†	4	31	38	5.13	+ 3.02	0.93	6.0	12	8	2	21	nw.	A. C. Senter.						
New Bremen.	Auglaize.	1,038	20	33.8	+ 6.1	57	20	10	4	26	6.21	+ 3.84	1.41	8.5	15	10	5	16	sw.	Miss Anna Grothaus.						
North Royalton.	Cuyahoga.	1,000	20	34.4	+ 8.6	56	17	7	9	30	6.73	+ 3.69	1.07	12.0	15	6	11	14	sw.	W. S. Edgerton.						
Norwalk.	Huron.	719	27	34.8	+ 7.9	62	20	5	5	29	6.60	+ 4.08	0.97	11.0	18	5	10	16	w.	Giles R. Gregory.						
Oberlin.	Lorain.	855	38	33.9	+ 8.0	58	20	5	9	27	6.44	+ 4.12	1.03	14.0	18	10	4	17	s.	Prof. F. F. Jewett.						
Ottawa.	Putman.	720	20	33.5	+ 6.3	65	17	8	5†	26	5.31	+ 2.77	1.03	-----	17	3	11	17	sw.	Prof. J. T. Maidlow.						
Sandusky.	Erie.	629	36	34.3	+ 8.0	58	20	11	9	34	6.10	+ 4.00	1.03	10.7	16	3	4	24	se.	U. S. Weather Bureau.						
Tiffin.	Seneca.	775	31	34.0	+ 6.6	56	17†	7	9	29	8.52	+ 5.39	1.15	21.5	19	10	4	17	sw.	Prof. T. H. Sonnedecker.						
Toledo.	Lucas.	769	42	32.0	+ 6.4	57	17	11	9	35	6.63	+ 4.71	1.37	5.8	17	6	5	20	sw.	U. S. Weather Bureau.						
Upper Sandusky.	Wyandot.	854	30	33.0	+ 6.2	57	20	7	9	27	7.18	+ 4.58	1.40	12.0	16	3	8	20	sw.	Robert E. Tracht.						
Vickery.	Sandusky.	588	20	32.8	+ 6.1	58	20	6	9	29	6.71	+ 4.30	0.97	8.4	17	5	6	20	sw.	John W. Barr.						
Wapakoneta.	Auglaize.	898	1	33.0	-	56	20	6	5	24	7.53	-	1.11	16.0	19	7	7	17	s.	Dr. William Kayser.						
Wauseon.	Fulton.	780	41	29.9	+ 6.3	54	17	5	9†	31	5.84	+ 3.46	1.33	10.4	19	2	12	17	s.	Thomas Mikesell.						
Wickliffe.	Lake.	740	1	26.8	+ 10.5	54	31	9	43	5.99	-	1.27	5.5	15	9	3	19	s.	C. M. Richardson.							
<i>Pennsylvania.</i>																										
Erie.	Erie.	658	40	35.9	+ 9.4	59	20	20	9	30	5.60	+ 2.57	1.13	4.1	17	4	6	21	s.	U. S. Weather Bureau.						
<i>New York.</i>																										
Adams Center.	Jefferson.	540	22	32.0	+ 10.4	54	17	-	7	31	6.39	+ 2.29	0.86	23.5	21	12	5	14	s.	A. E. Cooley.						
Angelica.	Allegany.	1,340	30	32.2	+ 9.3	54	17	3	9	35	4.00	+ 1.32	0.77	6.0	16	2	7	22	sw.	Charles P. Arnold.						
Appleton.	Niagara.	270	22	33.0	+ 6.7	58	20	11	13	29	4.93	+ 2.25	0.90	T.	11	5	6	20	sw.	H. A. Van Wagoner.						
Auburn.	Cayuga.	715	44	33.6	+ 9.5	55	17†	5	9	33	5.86	+ 3.31	2.00	11.0	10	8	10	13	s.	A. H. Underwood.						
Avon.	Livingston.	585	18	32.0	+ 9.2	54	17†	8	9	28	2.81	+ 0.97	0.60	4.0	13	2	9	20	sw.	W. G. Markham.						
Brockport.	Monroe.	537	17	33.0	+ 9.2	54	17†	8	9	28	4.70	+ 1.79	0.76	13.0	18	2	2	14	s.	W. H. Lennon.						
Buffalo.	Erie.	767	62	33.8	+ 9.1	56	20	13	16	26	5.56	+ 2.20	0.98	7.0	16	4	7	20	sw.	U. S. Weather Bureau.						
Canton.	St. Lawrence.	448	19	26.8	+ 10.5	54	31	-	11	9	43	4.93	+ 1.77	1.18	16.3	17	4	19	sw.	Do.						
Cape Vincent.	Jefferson.	246	8	32.0	+ 10.4	54	17	-	7	31	6.39	-	5.55	-	1.20	-	11	6	9	16	w.	J. Harry Grapotte.				
Chazy.	Clinton.	151	13	26.7	+ 10.9	48	19†	-	12	9	33	1.50	-	0.22	0.40	12.5	7	10	4	14	s.	W. R. North.				
Chestnut Lawn.	Wyoming.	1,090	1	32.9	-	56	17	-	3	13	5.25	-	5.25	-	1.10	9.0	14	11	6	14	sw.	Charles Peterson.				
Dannemora.	Clinton.	1,490	8	26.2	-	49	13†	-	8	13	5.68	-	3.68	-	0.80	10.0	13	3	6	22	w.	Dr. W. N. Thayer.				
Eiba.	Genesee.	500	14	30.5	+ 6.8	56	17	-	6	9	41	5.21	+ 1.94	1.10	16.0	13	11	4	16	sw.	Joseph S. Willard.					
Fayetteville.	Onondaga.	530	12	34.0	+ 10.2	56	17†	-	2	9	28	3.61	+ 1.40	0.80	4.0	15	4	9	18	sw.	Dana H. Wells.					
Gabriels.	Franklin.	1,729	11	24.4	-	51	31	-	17	36	5.45	-	0.77	1.25	21	5	6	20	sw.	Gabriel Sanitarium.						
Harkness.	Clinton.	622	11	27.8	+ 9.6	55	17†	-	11	13	33	3.52	+ 1.92	0.95	9.5	10	10	11	11	s.	J. W. Harkness.					
Hemlock Lake.	Livingston.	900	15	27.8	+ 9.6	55	17†	-	11	13	33	2.06	+ 0.65	0.50	5.5	9	22	1	8	w.	Bernard P. McGrady.					
Hunt.	do.	1,321	14	34.6	+ 10.4	56	17	9	9†	26	5.66	+ 3.01	1.55	12.0	8	5	11	15	sw.	W. S. Barager.						
Ithaca.	Tompkins.	928	35	34.7	+ 10.6	55	8	9	13	38	3.15	+ 0.99	1.44	2.1	12	2	9	20	se.	U. S. Weather Bureau.						
Keene Valley.	Essex.	1,000	15	29.0	+ 10.6	56	31	-	3	9	35	5.25	+ 2.18	0.63	11.8	15	3	7	11	nw.	E. R. Wells.					
King Ferry.	Cayuga.	13	16	31.6	+ 13.1	50	17†	4	9	30	3.14	+ 0.89	1.50	2.5	11	3	12	16	s.	Lucius A. Goodey.						
Lake George.	Warren.	350	16	31.6	+ 13.1	50	17†	4	9	30	4.06	+ 0.98	0.92	6.9	13	5	12	16	s.	Charles Forsell.						
Lake Placid Club.	Essex.	1,864	5	21.3	-	46	31	-	11	13	34	7.36	-	1.21	21.2	22	8	10	13	nw.	Henry van Hoevenberg.					
Lauterbrunnen.	Wyoming.	1	33	32.2	-	55	17	-	7	13	32	5.30	-	0.91	13.8	15	4	11	16	sw.	James O. Howard.					
Lockport.	Niagara.	520	26	32.2	+ 7.1	58	20	9	9	28	4.28	+ 1.79	0.55	7.0	11	4	13	14	sw.	Robert N. Clark.						
Lowville.	Lewis.	900	46	30.0	+ 11.3	56	18†	-	1	9	33	5.09	+ 2.30	0.71	21.5	19	3	21	7	sw.	Prof. W. F. H. Breeze.					
Moira.	Franklin.	200	13	26.2	+ 10.9	56	31	-	14	13	41	4.68	+ 1.80	1.75	20.0	14	8	9	14	w.	C. E. McBride.					
Nehasane.	Hamilton.	1,750	5	23.9	-	50	31	-	15	9	39	7.94	-	1.02	32.5	24	6	13	12	s.	L. W. Brown.					
North Lake.	Herkimer.	1,822	22	26.0	-	48	3	-	7	9	38	3.30	-	1.16	11.5	16	11	4	16	sw.	John F. Redmond.					
Ogdensburg.	St. Lawrence.	175																								

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
▲ The no. other data.

[†] Also on other dates.

1. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for January, 1913. District No. 4, Lake Region.*

Stations.	Watershed.	Day of month.																													Total.					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
<i>Minnesota.</i>																																				
Cloquet.....	L. Superior.....	.05	T.								.02		.12	T.	T.	.02	.03				T.	.01			.04	T.			.28	.04	.23	.00	0.75			
Duluth.....	do.....		T.							.03		.02	.06	T.	T.																			0.46		
Floodwood.....	do.....																																		0.29	
Stephens Mine.....	do.....																																		0.19	
Two Harbors.....	do.....																																		0.19	
Virginia.....	do.....																																		0.33	
<i>Wisconsin.</i>																																				
Appleton.....	Fox.....	.01	.01	T.	.19	.04	.55	.06		T.	T.	T.	.03								T.													1.48		
Ashland.....	L. Superior.....	T.	T.							T.	T.	T.	T.								T.														0.59	
Bayfield.....	do.....	T.	T.						T.		T.	T.	T.							T.														0.22		
Cecil.....	Fox.....	.03	T.			.12	.04	.08	.12		T.	T.								T.													0.65			
Cornucopia.....	L. Superior.....																																			
Crandon.....	Fox.....	T.	T.																																	0.65
Florence.....																																				
Fond du Lac.....	Fox.....	T.	T.			.30	T.	.16												T.														1.47		
Grand River Locks.....	do.....					.06	.01	.06	T.																									0.96		
Green Bay.....	L. Michigan.....	.04	.05			.20	.02	.30			T.	T.	T.	T.						T.													1.17			
High Falls.....	do.....	T.	.02	T.	.10	.20	.15	.10		T.										T.														1.64		
Iron River.....	L. Superior.....	T.	.10							T.										T.															1.45	
Keweenaw.....	L. Michigan.....	.11	T.			.20	.05	.50			T.									T.														1.76		
Manitowoc.....	do.....	.09				.16	.47			T.									T.															1.51		
Menasha.....	Fox.....	T.	.02			.11	T.	.12											T.															0.75		
Menomonee Falls.....	L. Mictigan.....					.05	.04	.52			T.	T.	T.	T.					T.														1.07			
Milwaukee.....	do.....	T.	.01			.16	.11	.44			T.	T.	T.	T.					T.															0.97		
New London.....	Fox.....	T.				.12	.08			T.									T.															0.66		
Oconto.....	L. Michigan.....	.07				.40	*	.20											T.															1.67		
Oshkosh.....	Fox.....	T.				.30	.40											T.																1.20		
Pine River.....	do.....	T.	.02			.11	T.	.16	.04			T.	T.	T.	T.				T.														0.86			
Plum Island.....	L. Michigan.....	.08	T.			.13	*	.20	.10		T.	T.	T.	T.				T.														1.32				
Plymouth.....	do.....	T.	.08			*	.23	*	.35									T.															1.31			
Port Washington.....	do.....																																		1.35	
Racine.....	do.....																																		0.97	
Ripon.....	Fox.....	T.				.28	.08	.27	.08	T.								T.														1.39				
Shéboygan.....	L. Michigan.....	T.	.05			.20	.40	.60										T.															2.05			
Sturgeon Bay.....	do.....	T.	.10			.23	.38											T.															1.30			
Superior II.....	L. Superior.....																																		0.17	
Waupaca.....	Fox.....					.02		.11	.04	.12	.07																						0.36			
<i>Illinois.</i>																																				
Chicago.....	L. Michigan.....	T.	T.			.03	.21	.12	T.	T.	.04	T.						T.		.01	.06	.01	.29		.10	.24		T.		.07	.11	.03	T.	.01	1.33	
Evanston.....	do.....	T.				.05	.25	.50			T.																							1.46		
<i>Indiana.</i>																																				
Auburn II.....	Maumee.....																																			3.96
Berne.....	do.....	.16	.32	.12	.37	.56	.14	.01			.24	.78	.22							T.		.59	.43	.08	.133	T.		.54								7.28
Fort Wayne.....	do.....	.04	.01	.04	.30	.02	.49	T.			.26	.37	T.						T.		.39	.27	.23	.10	T.		.02	.39								5.54
Hammond.....	L. Michigan.....																			T.																
Howe II.....	St. Joseph.....	.18		T.	.25	.26	.27	T.		.11	.05	.08							T.		.02	.09	.08	.12	.05	.96										3.17
Notre Dame.....	do.....					.09	T.	.73	.12		.04								T.		*.19			.48										2.83		
Whiting.....	L. Michigan.....																																		1.68	
<i>Michigan—Upper Peninsula.</i>																																				
Baraga.....	L. Superior.....																		T.																	1.14
Bergland.....	Ontonagon.....																		T.																	
Blaney.....	Manistique.....																		T.																	
Calumet.....	L. Superior.....	.24	.32	.24	.08	T.	.04	T.	T.	.32	.16	.08							T.		.20	.16	.08	T.		.12	T.								2.32	
Chatham.....	do.....	T.	.30			.50	.10	.10			T.								T.																2.30	
Deer Park.....	do.....					.20		T.										T.																	1.10	
Detour.....	St. Marys.....																																			

TABLE 2.—*Daily precipitation for January, 1913. District No. 4—Continued.*

TABLE 2.—*Daily precipitation for January, 1913. District No. 4—Continued.*

* Precipitation included in that of the next measurement.

[‡] Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

T. Precipitation is less than 0.01 inch rain or melted snow.

MONTHLY WEATHER REVIEW.

JANUARY, 1913

TABLE 3.—Maximum and minimum temperatures for January, 1913. District No. 4, Lake Region.

Date.	Wisconsin.								Chicago, Ill.		Upper Michigan.								Lower Michigan.										
	Duluth, Minn.		Florence.		Green Bay.		Milwau- kee.				Escanaba.		Ewen.		Houghton.		Mar- quette.		Sault Ste. Marie.		Alpena.		Battle Creek.		Cadillac.				
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
1....	38	18	34	5	41	20	43	28	43	32	43	27	37	19	39	0	37	11	41	24	33	23	35	21	41	25	36	16	
2....	25	9	35	14	38	23	39	23	43	24	46	28	35	30	35	14	34	18	36	27	34	32	33	32	42	33	37	24	
3....	9	-2	28	15	26	14	26	13	32	21	28	24	30	15	27	12	25	14	27	15	33	11	35	22	34	25	31	23	
4....	13	-9	18	7	14	5	21	10	27	16	25	14	18	6	12	-19	19	12	18	11	16	7	24	15	28	18	24	13	
5....	-2	-16	11	-4	9	5	28	13	31	19	43	14	12	2	1	-20	14	1	14	0	17	4	28	10	16	20	9		
6....	-1	-15	14	2	20	9	27	15	32	23	40	32	21	11	14	0	13	6	18	10	20	3	30	21	32	26	23	18	
7....	8	-12	13	1	15	12	26	18	30	28	32	29	14	10	12	5	13	5	16	11	7	-5	21	16	30	20	21	11	
8....	9	-4	17	5	19	3	21	10	28	17	32	17	20	8	19	-13	18	8	22	9	15	-3	18	9	26	11	18	5	
9....	22	8	24	-1	22	6	23	19	29	15	31	15	22	8	27	-13	31	4	24	8	30	8	26	9	25	6	21	0	
10....	16	2	24	7	23	14	33	19	36	23	38	24	22	10	22	12	24	21	27	13	26	16	30	22	33	16	28	15	
11....	9	-16	20	1	24	2	34	5	38	11	39	27	26	6	20	0	23	2	23	6	27	16	32	19	35	30	30	24	
12....	-9	-28	5	-11	2	-7	5	-5	13	0	27	13	6	-5	5	-22	3	-7	6	-5	16	-5	19	4	31	14	24	20	
13....	7	-10	7	-13	12	-3	21	2	30	13	33	12	9	-4	10	-20	12	-7	7	13	-4	12	-3	20	4	29	6	20	
14....	17	-5	21	-2	26	-1	33	7	34	17	32	26	24	0	23	-16	24	-3	20	6	32	4	23	16	30	24	27	13	
15....	25	16	34	12	37	26	40	33	44	32	43	31	38	23	31	12	31	12	36	19	35	30	36	27	39	26	37	27	
16....	35	19	37	28	45	34	49	35	54	42	53	43	37	30	39	26	37	26	37	29	35	31	39	34	43	36	38	32	
17....	35	-5	41	13	47	16	51	29	55	36	56	43	40	13	42	2	41	13	43	14	44	22	50	28	51	42	45	32	
18....	8	-9	15	3	20	12	29	18	37	26	43	31	19	10	14	2	16	9	18	14	22	9	28	20	42	25	33	20	
19....	24	-8	32	15	9	37	17	40	23	47	29	53	28	35	18	34	10	36	14	36	15	33	9	35	21	42	22	33	19
20....	-5	-18	37	0	32	1	32	5	43	11	54	23	32	-3	9	16	2	23	-4	33	12	36	12	47	25	37	18		
Mns..	16.3	-3.7	23.5	4.4	26.6	10.2	32.0	15.7	36.7	21.9	39.3	24.2	25.5	9.5	23.5	-1.0	23.6	7.4	25.4	10.1	25.5	9.9	30.3	15.9	35.5	21.6	29.4	15.3	

Date.	Lower Michigan.								Ohio.								New York.								Vermont.				
	Detroit.		Muskegon.		Saginaw, West Side.		Cleveland.		Lima.		Sandusky.		Toledo.		Erie, Pa.		Buffalo.		Canton.		Rochester.		Syracuse.		Burling- ton.	Northfield.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
1....	40	27	42	27	42	26	42	29	38	32	44	28	39	26	41	31	39	32	40	29	41	30	40	28	41	23			
2....	45	36	33	27	43	31	48	36	47	35	51	34	49	34	48	37	49	35	44	28	51	33	47	32	44	34	15		
3....	36	26	32	26	32	25	38	26	41	23	34	25	35	26	44	30	44	29	43	32	45	29	52	32	49	28			
4....	26	19	27	18	25	18	26	20	26	20	26	15	25	20	26	21	30	23	30	25	29	19	30	26	36	24	25		
5....	32	17	25	15	28	15	46	23	32	12	45	20	35	17	43	22	37	21	26	9	34	19	33	22	30	16	28		
6....	39	31	28	22	30	20	53	34	48	32	49	30	42	30	55	31	47	30	42	16	46	31	49	32	42	19	40	17	
7....	31	24	27	17	21	21	43	31	34	29	33	30	32	28	33	30	32	25	22	11	31	26	32	24	38	36	16		
8....	25	13	24	15	24	8	36	20	34	16	32	14	28	14	33	20	29	16	11	-1	30	13	34	9	34	5	28	3	
9....	25	13	31	15	24	7	30	14	30	10	29	11	25	11	30	20	30	14	21	-11	24	13	27	4	17	-4	13	-1	
10....	36	23	35	28	33	17	39	25	36	25	38	24	36	21	40	28	38	29	32	21	38	19	42	25	31	17	33	6	
11....	36	30	36	28	35	26	49	32	44	35	43	33	41	39	49	35	43	46	36	40	31	46	37	51	36	41	28	43	12
12....	30	13	28	11	26	7	32	22	39	18	33	18	33	14	35	25	31	16	16	7	38	16	42	12	41	3	50	5	
13....	30	12	29	11	26	6	35	17	35	15	33	17	30	14	32	21	31	13	19	-8	27	14	25	11	18	-6	14	-4	
14....	32	21	33	21	30	20	38	22	34	21	37	21	34	20	39	24	36	27	34	2	36	22	36	19	28	11	27	5	
15....	38	30	41	33	40	27	44	34	40	30	43	33	41	29	45	36	44	35	42	34	45	34	38	28	42	18	18	18	
16....	46	37	44	34	45	36	51	44	49	37	52	43	49	40	51	41	48	38	41	34	44	40	48	36	44	44	33		
17....	54	44	44	35	53	34	57	51	55	48	56	50	57	45	58	51	53	41	50	44	48	38	54	34	48	33	54		
18....	44	26	35	22	34	22	53	31	52	33	53	32	45	30	54	29	49	28	46	25	51	30	54	30	47	32	54		
19....	45	26	41	24	41	22	46	30	51	27	53	30	50	28	49	29	43	27	25	14	35	29	33	28	32	12	31	14	
20....	48	21	39	21	40	13	59	27	57	30	58	26	53	24	59	26	50	18	55	33	55	31	44	12	41	14	41		
21....	26	13	29	13	24	7	27	21	33	16	28	20	26	17	2														